



Influence analysis of Arctic tide gauges using leverages

Svendsen, Peter Limkilde; Andersen, Ole Baltazar; Nielsen, Allan Aasbjerg

Published in:
Geophysical Research Abstracts

Publication date:
2014

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Svendsen, P. L., Andersen, O. B., & Nielsen, A. A. (2014). Influence analysis of Arctic tide gauges using leverages. *Geophysical Research Abstracts*, 16, [EGU2014-14548-1].
<http://meetingorganizer.copernicus.org/EGU2014/EGU2014-14548-1.pdf>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



Influence analysis of Arctic tide gauges using leverages

Peter Limkilde Svendsen (1), Ole Baltazar Andersen (1), and Allan Aasbjerg Nielsen (2)

(1) DTU Space, Technical University of Denmark, Kgs. Lyngby, Denmark, (2) DTU Compute, Technical University of Denmark, Kgs. Lyngby, Denmark

Reconstructions of historical sea level in the Arctic Ocean are fraught with difficulties related to lack of data, uneven distribution of tide gauges and seasonal ice cover. Considering the period from 1950 to the present, we attempt to identify conspicuous tide gauges in an automated way, using the statistical leverage of each individual gauge. This may be of help in determining appropriate procedures for data preprocessing, of particular importance for the Arctic area as the GIA is hard to constrain and many gauges are located on rivers.

We use a model based on empirical orthogonal functions from a calibration period, in this preliminary case Drakkar ocean model data, which are forced using historical tide gauge data from the PSMSL database. The resulting leverage for each tide gauge may indicate that it represents a distinct mode of variability, or that its time series is perturbed in a way inappropriate for the reconstruction so that it should be removed from the reconstruction model altogether. Therefore, the characteristics of the high-leverage gauges are examined in detail.